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yet recorded. The silver mining industry presents a condition far less satisfactory, owing to the low prices of silver, lead, copper and zinc. Important mines in Colorado and Utah found it difficult to make profits on low-grade ores, and large smelters in these states were closed during part of the year or were operated with reduced capacities. A temporary lack of demand for silver in India, and a very heavy production in Canada contributed to the depression in price. The average price per ounce during the year was 53 cents, as against 66 cents in 1907. The Geological Survey's report on gold and silver in 1908, prepared by Messrs. Waldemar Lindgren and H. D. McCaskey, may be had by applying to the director of the survey at Washington.

ACCORDING to a notice in the London *Times* the project described recently by Sir William Willcocks at a meeting of the Royal Geographical Society promises to be the most important engineering undertaking of the near future. An irrigation scheme is being planned for the rehabilitation of Mesopotamia upon such a scale that 3,000,000 acres of the best land in that country will be provided with water. If it is carried out, the Tigris, the Euphrates and the Akkar Kuf Lake will form part of a controlled system of canals, weirs and barrages, whereby the pernicious silt is to be separated, floods are to be prevented and wheat-bearing land is to be nourished with water. It is estimated that the cultivated area will be doubled, and that the crop of wheat along the Euphrates will be trebled. The scheme would also result in a vast increase in the yield of cotton. Briefly, it consists of providing a means of escape for the flood waters of the Euphrates along the depressions of the Pison, but it also entails the construction of a great central canal, regulators to control the supply from the Euphrates at the head of the Sakhlawia, a weir on the Tigris, a canal for irrigation to the north of Baghdad, another canal along the right bank of the Tigris and the building of a railway along the left bank of this canal for the transport of the harvests. Moreover, the construction work would include a railway to connect

Baghdad with the Mediterranean by a short and cheap route.

UNIVERSITY AND EDUCATIONAL NEWS

THE trustees of the University of Pennsylvania announce that Mr. Henry Phipps, of New York, founder of the Phipps Institute in Philadelphia, has presented to the university \$500,000, to be used in the campaign against tuberculosis. The management of the Phipps Institute will be in the hands of the university, and the study, treatment and prevention of the disease will be continued in a new hospital to be erected at Seventh and Lombard Streets. Six years ago Henry Phipps founded the Phipps Institute for Tuberculosis Research in Philadelphia, with a large endowment. In 1908 he gave \$500,000 to the Johns Hopkins University for the founding of a psychiatric clinic.

THE eleventh industrial fellowship at the University of Kansas has been established by the Pacific Coast Borax Company of Oakland, California, and will be known as the Borax fellowship. The amount which this company will pay to support the work of its fellow is \$750. The purpose of the fellowship is to investigate the uses of borax and to discover if possible new commercial utility in this product.

THE cornerstone of the new science hall of Howard University was recently laid by Richard A. Ballinger, secretary of the interior. Addresses were delivered by Dr. Robert S. Woodward, president of the Carnegie Institution of Washington and Dr. Charles Wardell Stiles, director of the Rockefeller fund for combating the hook-worm disease. An appropriation of \$90,000 was made by the last congress for the erection of this hall.

LECTURES in veterinary science are to be given in the College of Agriculture of the University of Wisconsin this year during the second semester as a result of the appointment of Dr. John Spencer, of Pulaski, Va., as special lecturer in veterinary science. In addition to his lectures Dr. Spencer will have

veterinary supervision of the university flocks and herds.

THE department of mining engineering of the University of Illinois has just issued its first circular of information. The course of study required for the degree of B.S. in mining engineering covers the usual period of four years. The technical studies relating to mining are begun in the sophomore year, mining principles in the first semester and earth and rock excavation in the second semester. In the junior year the study of mining methods, mine surveying and mine ventilation is pursued. In the senior year more time is devoted to the subjects relating particularly to mining. They are mechanical engineering of collieries, mine administration and organization, mining law, mining laboratory and economics of coal. Professor H. H. Stock, head of the department has been appointed a member of the Mine Commission by Governor Deneen. A Mine Explosion and Rescue Station has been established at the university under the direction of Mr. R. Y. Williams.

It has been decided by Balliol College to offer next year an exhibition of £80 a year, tenable for two years, for the competition among students recommended by trade unions operating in Newcastle.

For the recently constituted degree of bachelor of science in agriculture at the University of Manchester, special courses have been prepared. The practical work will be carried on at the college of agriculture and horticulture at Holmes Chapel under the supervision of the principal, Mr. T. J. Young, who has been appointed a lecturer in the department of agriculture in the university.

THE professorship of natural history at the College of the City of New York has been filled by the promotion of Dr. Ivin Sickels, assistant professor, who since the death of Professor Stratford has directed the affairs of the department. Professor C.-E. A. Winslow, of the Massachusetts Institute of Technology, has accepted an appointment as associate professor of biology in the College of the City of New York and has been made curator of public health in the American Museum of Nat-

ural History. Professor Winslow is lecturing at the University of Chicago, on leave of absence from the institute during January, February and March, returns to Technology for the rest of the spring term and goes to New York in September.

DR. JOSEPH EVANS, of Philadelphia, has been appointed professor of clinical medicine and medical adviser to the students of the University of Wisconsin.

MR. HAROLD K. BARROWS, of the U. S. Geological Survey, has been appointed to the position of associate professor of hydraulic engineering at the Massachusetts Institute of Technology, made vacant by the resignation of Professor William E. Mott.

DISCUSSION AND CORRESPONDENCE

THE TEACHING OF ELEMENTARY DYNAMICS IN THE HIGH SCHOOL

TO THE EDITOR OF SCIENCE: So the teachers of physics have at last recognized and confessed the fact that they do not know how to teach elementary dynamics (or kinetics) to high school students, and they think they have discovered the cause of their trouble, viz., the multiplicity of forms in which the "youngster" is taught the familiar formula

$$\text{force} = \text{mass} \times \text{acceleration},$$

one of these forms being

$$\text{force (poundals)} = \text{mass (pounds)} \times \text{accel.}$$

(ft. per sec. per sec.)¹

Instead of drawing the obvious conclusion, "let us simplify the subject and get rid of some of the forms, especially the one with the 'poundal' in it," the physicists are actually talking of running away from the difficulty. A majority of a conference of physicists have signed a statement which proposes among other things "that colleges should require of the schools no quantitative treatment of kinetics, or the behavior of matter undergoing acceleration."

To this lame and impotent conclusion have the teachers of physics come after years of blindly following the modern text-books. The aim of these text-books seems to be not to make

¹ See Professor Edwin Hall's paper in SCIENCE, October 29.